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| APPLICATION NO.                                      | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/668,025   | 09/19/2003  | Reinhard Bruch       |                     | 1402             |
| 7590   | 10/02/2006  |                      | EXAMINER            |                  |
| Reinhard Bruch<br>709 Putnam Drive<br>Reno, NV 89503 |             |                      | GEISEL, KARA E      |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2877                |                  |

DATE MAILED: 10/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                            |                  |
|------------------------------|----------------------------|------------------|
| <b>Office Action Summary</b> | Application No.            | Applicant(s)     |
|                              | 10/668,025                 | BRUCH ET AL.     |
|                              | Examiner<br>Kara E. Geisel | Art Unit<br>2877 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 19 June 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 11-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 11-37 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 September 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____.                                     |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____.                         |

## DETAILED ACTION

### *Drawings*

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second detector and the second channel of claims 27-28 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11-19 and 34-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described

in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In regards to claims 11 and 34, the specification does not disclose having the collimator, angle-adjustable mirror or the diffraction grating at radial positions to the light source wherein the radial positions between the collimator and the adjustable mirror are spaced apart by an acute angle, or that the adjustable mirror and grating are spaced apart at an acute angle.

In regards to claim 13, the specification does not disclose having the light path consist of any specific substance, including gas.

In regards to claims 15 and 35, the specification does not disclose the dimensions of the angle-adjustable mirror.

Claims, which are dependent from claims 11, 13, 15, and 34-35 inherit the problems of these claims, and are, therefore also rejected under 35 U.S.C. 112, first paragraph.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-12, 14 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Santman et al. (USPN 5,889,588), newly cited.

In regards to claims 11 and 34, Santman discloses a scanning monochromator comprising a light source (fig. 1, 12 sends light to the entrance, which is 302 in fig. 7), a collimator mirror at a first radial position relative to the light source (fig. 7, 306), an angle-adjustable mirror at a second radial position relative to the light source (314), and a diffraction-grating at a third radial position relative to the light

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source (310), wherein the second radian position is spaced apart from the first radial position (306 to 314) by an acute angle (with respect to 302), and the second radial position is spaced apart from the third radial position (314 to 310) by an acute angle (with respect to 302).

In regards to claim 12, the scanning monochromator does not include a lens or a prism (fig. 7).

In regards to claim 14, the collimator mirror is substantially parabolic (column 3, lines 29-31).

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11-14, 16-22, 24-34, and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stock et al. (DE 199 55 759 A1 and Appendix 2 of applicant's remarks), previously cited, in view of Kaneko, (US Pubs 2002/0021493), newly cited.

In regards to claim 11 20, 22, 31, and 34, Stock discloses a scanning monochromator comprising a light source (fig. 2, from 10), a collimator lens at a first radial position relative to the light source (7), an angle-adjustable mirror at a second radial position relative to the light source (5), and a diffraction-grating

at a third radial position relative to the light source (8), wherein the second radian position is spaced apart from the first radial position (7 to 6) by an acute angle (with respect to 10), and the second radial position is spaced apart from the third radial position (5 to 8) by an acute angle (with respect to 10). Furthermore (for claims 20, 22, and 31) the collimator lens receives an input beam from the light source (from 10), the angle-adjustable mirror (5) received light from the collimator lens (7), and the diffraction grating (8) receives light from the adjustable mirror (5), wherein the grating (8) disperses the input beam to form a dispersed output beam, the output beam traveling from the grating to the adjustable mirror (5), then to the collimator lens (7) and finally to a detector (11). It is not specifically disclosed that in this embodiment, the collimating lens can be a collimating mirror. However, a collimating mirror and a collimating lens are optical equivalents, and furthermore it is shown in other embodiments that the collimating means can be a mirror (see fig. 1, 3 and Appendix 2, page 3, ¶ 16).

For example, Kaneko discloses a scanning monochromator as well (fig. 1), which includes a collimating mean (3 and 17), and a moveable grating (4). It is disclosed that the collimating lenses can be replaced with collimating mirrors, and collimating mirror can be replaced with collimating lenses (page 4, ¶ 51). This is because they are optical equivalents, and furthermore because they can allow the ability to change the design of the monochromator, allowing a more compact shape because the collimating mirror folds the beam back into the system. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the collimating lens of Stocks fig. 2 with a collimating mirror since they are optical equivalents, and further because it would allow the monochromator to be designed to be more compact.

In regards to claims 12, 21 and 25, the combined scanning monochromator does not include a lens or a prism (Stock fig. 2, when the lens 7 is replaced with a mirror as discussed above).

In regards to claim 13, the light path consists of a gas (stock fig. 2; the fiber can be exchanged with the slit of fig. 1, 1, so that the entire path consists of a gas; Appendix 2, page 4, ¶ 19 continued).

In regards to claim 14, the collimator mirror is substantially parabolic or spherical (Stock fig. 1, 3, or Kaneko page 2, ¶ 28).

In regards to claim 16, since the scanning monochromator is small (micromechanical), and rugged it can be handheld (appendix 2, page 3, ¶s 11-13).

In regards to claim 17, the monochromator further comprises an analyzing unit (Stock, fig. 2, 11).

In regards to claims 18-19 and 32, an electrode is configured to move the angle adjustable mirror by electrostatic force, wherein the power supply to the electrode is variable to control movement of the adjustable mirror (appendix 2, pages 6-7, ¶s 30-32).

In regards to claims 24 and 37, the adjustable mirror and the grating are sized to operate with near and/or middle infrared light (appendix 2, page 5, ¶ 23).

In regards to claim 26, the monochromator further comprises a detector, wherein the output beam travels from the collimator mirror to the detector (Stock, fig. 2, 11).

In regards to claims 27-28, although the combined monochromator shows only one detector (Stock fig. 2, 11), it is shown that multiple beams are created at the detector area (in this case there are shown three beams, and only one is detected by 11), and it is disclosed that multiple detectors can be used at the exit of the monochromator (appendix 2, page 3, ¶ 17). If multiple wavelengths, and therefore, multiple beams were desired to be detected, then multiple detectors would be needed to measure them. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the combined method a second detector to measure a second wavelength, and therefore, a second output beam/channel.

In regards to claim 29, since there is an input light beam, it is inherent that there must be a source that generates the input light beam.

In regards to claims 30, 33 and 36, since the monochromator works in near infrared and/or middle infrared, the source can generate an input beam at these wavelengths (appendix 2, page 5, ¶ 23).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stock et al. (DE 199 55 759 A1 and Appendix 2 of applicant's remarks), previously cited, in view of Kaneko, (US Pubs 2002/0021493), newly cited, as applied to claims 11-14, 16-22, 24-34, and 36-37 above, and further in view of Izumi (USPN 4,441,815), newly cited.

In regards to claim 23, the combined monochromator shows all the features as described above, but is silent to having a sample receiver configured to hold a sample in the path of the input beam as it travels from the source to the collimator mirror. However, it is disclosed that this combined monochromator can be used in spectrometer applications (Stock, appendix 2, page 3, ¶ 17), and it is well known that spectrometers are used to measure samples, including ones that are in sample receivers, in order to measure the properties of the sample.

For example, Izumi discloses a spectrometer (fig. 7) comprising a monochromator (77) including a collimator mirror (78), a light source (70), and a sample receiver (58) for holding a sample in the path of an input beam as it travels between the source (70) and the collimator mirror (78). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the combined monochromator a sample receiver configured to hold a sample in the path of the input beam as it travels from the source to the collimator mirror in order to measure the properties of the sample.

#### *Response to Arguments*

Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

With respect claims 11-29, while Stock does not specifically disclose a collimator mirror with the adjustable mirror and separate diffraction grating (instead showing a collimator lens with the adjustable mirror and grating), a collimator mirror is shown to replace the collimator lens in fig. 1, and furthermore, it is well known in the art that collimator lenses and collimator mirrors are equivalents of each other, and

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can replace each other depending on the design of monochromator desired (see rejection above).

Therefore the rejection of these claims is proper.

The declaration under 37 C.F.R. § 1.132 is acknowledged. The arguments appear to be moot under the new grounds of rejection. However, it is noted that there is no evidence in the affidavit showing proof that lenses and prisms cannot work in the infrared, but it appears to merely be an opinion of the preference of a grating and mirror over a lens and prism in the infrared. Furthermore it is noted that many prior art references disclose using prisms and lenses in infrared embodiments (see USPN 2003/0142307, 6,525,814, and 5,757,483 for example).

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571 272 2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



F.L. Evans  
Primary Examiner  
Art Unit 2877

K.G.  
KEG  
September 26, 2006